

11. The catalyst of claim ¹⁰1 wherein said catalyst comprises a first layer containing a magnesium salt and a second layer containing a copper salt and, optionally, a lithium salt.

12. The catalyst of claim ¹¹2 wherein said salts are chloride salts.

13. The catalyst of claim ¹⁰4 comprising from about 0.1% to about 5% magnesium, from about 2% to about 10% copper, and from about 0 to about 5% lithium.

14. The catalyst of claim ¹³4 comprising from about 0.1% to about 2% magnesium, from about 2% to about 8% copper, and from about 0 to about 1% lithium.

15. The catalyst of claim ¹⁰1 wherein said γ -alumina has a surface area of from about 50 to 220 m²/g and an average particle size of from about 40 to 60 μ m.

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18. A process for preparing a catalyst comprising the steps of:

- (a) impregnating γ -alumina with a solution containing a magnesium salt;
- (b) drying the product of step (a); and
- (c) impregnating the product of step (b) with a solution containing a copper salt and, optionally, a lithium salt.

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The process of claim 7 wherein said salts are chloride salts.

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A catalyst produced by the process of claim 7.

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The catalyst of claim 9 containing by weight from about 0.1% to about 5% n, from about 2% to about 10% copper, and from 0 to about 5% lithium.

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The catalyst of claim 10 containing by weight from about 0.1% to about 2% n, from about 2% to about 8% copper, and from 0 to about 1% lithium.

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The catalyst of claim 11 containing by weight from about 0.5% to about 1.5% n, from about 3% to about 6% copper, and from about 0.1% to about 0.3% lithium.

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The catalyst of claim 9 wherein said γ -alumina has a surface area of from 50 to 220 m²/g and an average particle size of from 40 to 60 μ m.

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The catalyst of claim 10 wherein said γ -alumina has a surface area of from 50 to 220 m²/g and an average particle size of from 40 to 60 μ m.

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The catalyst of claim -11 wherein said γ -alumina has a surface area of from 50 to 220

m²/g and an average particle size of from 40 to 60 μm.

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The catalyst of claim 12 wherein said γ -alumina has a surface area of from 50 to 220

m²/g and an average particle size of from 40 to 60 μm.

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The catalyst of claim 13 wherein said γ -alumina has a surface area of from 80 to 180

 $\text{m}^2/\text{g}.$

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The catalyst of claim 14 wherein said γ -alumina has a surface area of from 80 to 180

 $\text{m}^2/\text{g}.$

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The catalyst of claim 15, wherein said γ -alumina has a surface area of from 80 to 180

 $\text{m}^2/\text{g}.$

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The catalyst of claim 16 wherein said γ -alumina has a surface area of from 80 to 180

 $\text{m}^2/\text{g}.$

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~~20~~ A process for the catalytic gas phase oxychlorination of ethylene comprising reacting ethylene, hydrogen chloride and a source of oxygen in the presence of the catalyst of any one of claims 1 to 6 and 9 to 16.

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claims 1 to 6 and 9 to 16.

Respectfully submitted,

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